Panasonic®

Operating Instructions

Memory Card Video Recorder

Model No. **AG-CPD20P**

Car Use only
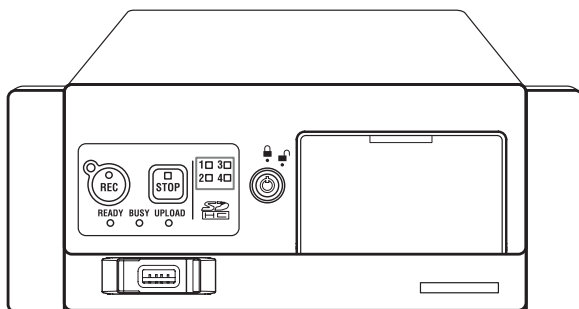
TOUGHBOOK
Arbitrator 360°
mobile digital video system

SD HC™

Manuals for this recorder are prepared in two parts.

Section 1 : Before Use (This Manual)

Section 2 : Operation (for operations using the remote control panel, etc.) (PDF)

Before operating this product, please read the instructions carefully and save this manual for future use.

ENGLISH
VQT2C58

Read this first!

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK, DO NOT REMOVE COVER (OR BACK). NO USER-SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle, is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

WARNING:
• To reduce the risk of fire or electric shock, do not expose this equipment to rain or moisture.
• To reduce the risk of fire or electric shock, keep this equipment away from all liquids. Use and store only in locations which are not exposed to the risk of dripping or splashing liquids, and do not place any liquid containers on top of the equipment.

WARNING:
Always keep memory cards (optional accessory) out of the reach of babies and small children.

CAUTION:
To reduce the risk of fire or electric shock and annoying interference, use the recommended accessories only.

⬚ indicates safety information.

2

Read this first! (continued)

CAUTION:
In order to maintain adequate ventilation, do not install or place this unit in a book case, built-in cabinet or any other confined space. To prevent risk of electric shock or fire hazard due to overheating, ensure that curtains and any other materials do not obstruct the ventilation.

FCC Note:
This equipment has been tested and found to comply with the limits for a class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.
Warning: To assure continued FCC emission limit compliance, the user must only use shielded interface cables when connecting to external units. Also, any unauthorized changes or modifications to this equipment could void the user's authority to operate it.

• This recorder is designed for use and installation in a vehicle.
  For example, it may be mounted on the center console or in the trunk.
• The installation of this equipment must only be performed by a professional installer.
• The rating plate is on the underside of the unit.

CAUTION:
To reduce the risk of fire, the red (BATT) and white (SIGNAL) wires of the power cable must be connected via fuses (7.5 A) having UL Listing.

▭ indicates safety information.

3

IMPORTANT SAFETY INSTRUCTIONS

(1) Read these instructions.

(2) Keep these instructions.

(3) Heed all warnings.

(4) Follow all instructions.

(5) Do not use this equipment near water.

(6) Clean only with a dry cloth.

(7) Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.

(8) Do not install near any heat sources such as radiators, heat registers, stoves, or any other equipment (including amplifiers) that produce heat.

(9) Only use attachments/accessories specified by the manufacturer, and as outlined in this manual.

(10) Refer all servicing requests to qualified service personnel. Servicing is required when the equipment has been damaged in any way, such as damage to the power supply cord or plug, liquid being spilled on or objects have fallen into the equipment, the equipment has been exposed to rain or moisture and does not operate normally, or has been dropped.
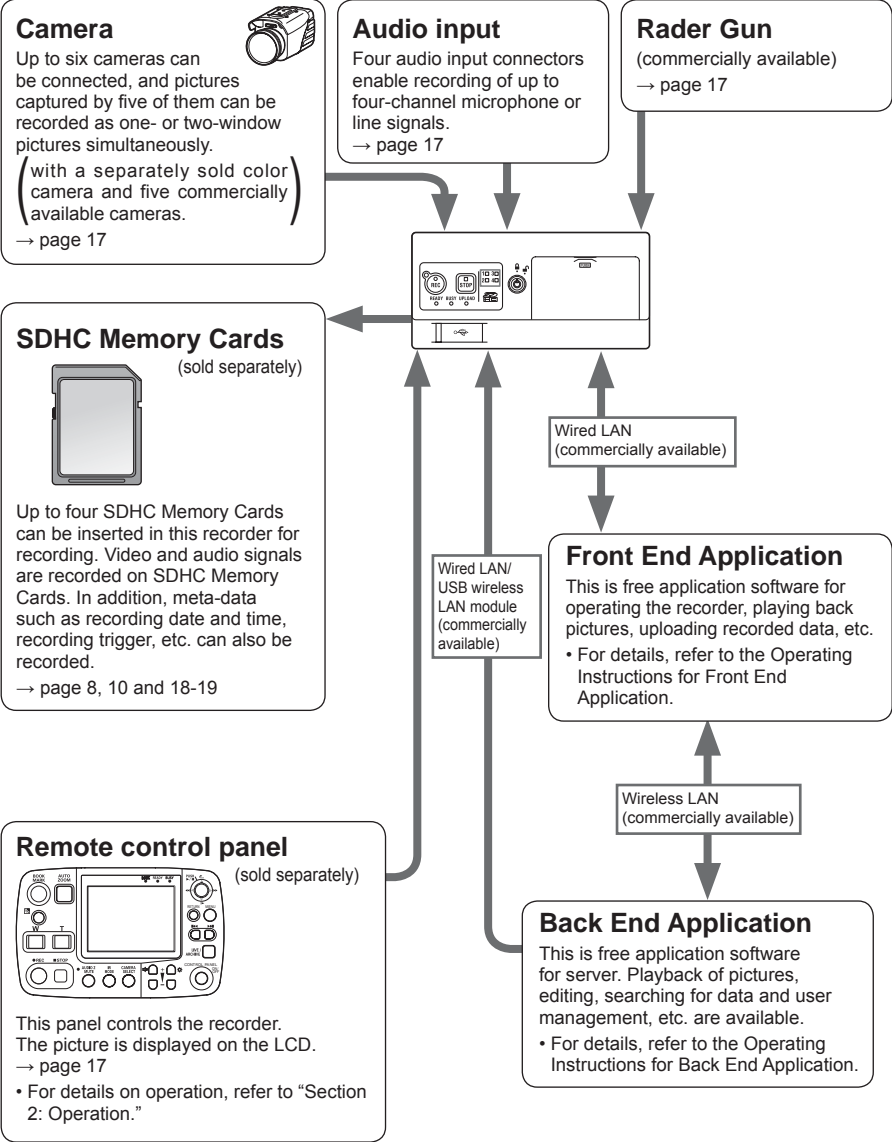
Contents

Information on software for this product

- Included with this product is software licensed under the GNU General Public License (GPL) and GNU Lesser General Public License (LGPL), and users are hereby informed that they have the right to obtain, change and redistribute the source codes of this software. Details on GPL and LGPL can be found in the GPL and LGPL sections of the Operating Instructions: Section 2.
  To obtain the source codes, go to the following home page.
  https://eww.pavc.panasonic.co.jp/pro-av/
  The manufacturer asks users to refrain from directing inquiries concerning the source codes they have obtained and other details to its representatives.
- Included with this product is software licensed under the OpenSSL License. Details on the OpenSSL License can be found in the OpenSSL License section of the Operating Instructions: Section 2.
- Included with this product is software licensed under the Blowfish License. Details on the Blowfish License can be found in the Blowfish License section of the Operating Instructions: Section 2.
- Included with this product is software licensed under the DES License. Details on the DES License can be found in the DES License section of the Operating Instructions: Section 2.
- Included with this product is software licensed under the X.Org License.
  Details on the X.Org License can be found in the X.Org License section of the Operating Instructions: Section 2.
- Included with this product is software licensed under the Ralink firmware License.
  Details on the Ralink firmware License can be found in the Ralink firmware License section of the Operating Instructions: Section 2.
- For information on other licensed software included with this product and their license conditions, go to the following home page.
  https://eww.pavc.panasonic.co.jp/pro-av/
- This product is licensed under the AVC Patent Portfolio License for the personal and noncommercial use of a consumer, and no license is granted or shall be implied for any use other than the personal uses detailed below.
  – To encode video in compliance with the AVC standard ("AVC Video")
  – To decode AVC Video that was encoded by a consumer engaged in a personal and noncommercial activity
  – To decode AVC Video that was obtained from a video provider licensed to provide AVC Video
- Additional information may be obtained from MPEG LA, LLC (http://www.mpegla.com).
  – Separate license contracts must be obtained from MPEG LA where SD Memory Cards containing information recorded with this product are to be distributed to end users for commercial purposes.
  "End user" refers to persons or organizations handling such contents for personal use.

Functions of This Recorder

An AG-CPD20P is a vehicle video recorder using SDHC Memory Cards.
A separately sold video camera, commercially available radar gun, and microphones can be connected to the recorder. The recorder can be controlled using a separately sold remote control panel, or software installed on a personal computer.

Camera

Up to six cameras can be connected, and pictures captured by five of them can be recorded as one- or two-window pictures simultaneously.

(with a separately sold color camera and five commercially available cameras.)

→ page 17

Audio input

Four audio input connectors enable recording of up to four-channel microphone or line signals.
→ page 17

Rader Gun

(commercially available)
→ page 17

SDHC Memory Cards

(sold separately)

Up to four SDHC Memory Cards can be inserted in this recorder for recording. Video and audio signals are recorded on SDHC Memory Cards. In addition, meta-data such as recording date and time, recording trigger, etc. can also be recorded.

→ page 8, 10 and 18-19

Wired LAN
(commercially available)

Wired LAN/
USB wireless
LAN module
(commercially available)

Front End Application

This is free application software for operating the recorder, playing back pictures, uploading recorded data, etc.
• For details, refer to the Operating Instructions for Front End Application.

Wireless LAN
(commercially available)

Remote control panel

(sold separately)

This panel controls the recorder.
The picture is displayed on the LCD.
→ page 17
• For details on operation, refer to "Section 2: Operation."

Back End Application

This is free application software for server. Playback of pictures, editing, searching for data and user management, etc. are available.
• For details, refer to the Operating Instructions for Back End Application.

6

Included Accessories

Options

■ Remote Control Panel
  (AG-RCP30P)

■ Color Camera (AG-CK10P)

■ Cable Kit (AG-CR13P)
  Power cable
  Trigger cable
  GPS antenna + Antenna mounting
    plate

■ PC Applications (free software)
  Front End Application
    (AG-JJLFE20P)
  Back End Application
    (AG-JJLBE20P)

About Manuals of This Recorder

Manuals for this recorder are prepared in two parts: "Section 1: Before Use" (this
manual) and "Section 2: Operation" (PDF manual).
    Section 1: Before Use (This Manual)
    Section 2: Operation (for operations using the remote control panel, etc.) (PDF)

■ **Definition of terms**
    Officer: anybody using the Remote Control Panel, Front End Applications,
                    or Back End Application to control the recorder
    Administrator: a user with administrator privileges to collect and manage Memory
                    Card Recorder data

■ **Figures in this manual**
    Figures for the main unit and display on the menu screen may differ from the
    actual product.

Before Use

■**Always take a trial shoot.**

Before making important recordings, always take a trial shoot to confirm that recording works as expected. Especially when using "Backlighting Compensation" or "Night Shooting with the IR Function", verify that your settings produce the desired results.

■**When using for the first time or when using in a place with a different time zone, set the correct time zone.**

The factory default time zone setting is "Eastern DST".
When using in a different time zone, set the time zone for that region (refer to "TimeZone" in Section 2: Operation).

■**Recording officer data on this unit allows you to find out the person performed recording later** (refer to "Setting up/Deleting Officer Data" in Section 2: Operation).

■**Use together with the Remote Control Panel and other specified, separately sold accessories.**

■**This unit can be controlled by application software running on a Remote Control Panel or a PC (referred to as PC application in this manual).**

• For details on how to run the PC application, see the Operating Instructions of the PC application.

• Connecting a personal computer (referred to as PC in this manual) to this unit and starting up Front End application on the PC freezes this unit in the live screen and disables the other operations.

■**Usable memory cards**

The recorder is recommended to use an SDHC Memory Card (16 GB or 32 GB) having "SDHC" logo, made by Panasonic, and conforming to Class 6 or Class 10 of SD speed class.

■**Do not turn the power off while recording.**

Be sure to stop all operations before turning the power off (refer to "Stopping Recording" in Section 2: Operation).
Turning the power off especially during access (for example, during recording) may damage the SDHC Memory Card or corrupt file management data, setting information and other data on the SDHC Memory Card. If file data cannot be read correctly due to corrupted file management information on the SDHC Memory Card, the card should be reformatted. For details on reformatting, refer to "Format" in Section 2: Operation or contact your supplier.

• In no event will Panasonic be liable for any damages, including any incidental or consequential damages, stemming from a failure to record data or from lost settings or data.
Any of the following actions can result in problems:
  • Power supply to the recorder is interrupted or impaired during recording, for example by starting an engine.
  • If an SDHC Memory Card is ejected while it is being accessed (for example during recording).

Before Use (continued)

■ About the Internal Clock

Confirming the Time

The internal clock is set at the time of factory default. Check the time before using, and reset the clock if necessary. (Refer to "Date/Time" in Section 2: Operation.)

Note:

To use GPS, connect the GPS antenna (included in the separately sold Cable Kit) to the [GPS ANT.] connector on the rear panel.
Consult your supplier and request connection.
During GPS reception, the signals received will regularly and automatically set the recorder clock to GPS time.

Time Zone Setting

The factory default time zone setting is "Eastern DST".
When using in a different time zone, set the time zone for your region. (Refer to "TimeZone" in Section 2: Operation.)

Notes on Handling

■Usage

- Do not remove an SDHC Memory Card while it is being accessed, as the SDHC Memory Card may be damaged or the SDHC Memory Card slot may become disabled.
- Do not set liquid containers or small metal objects on the recorder or SDHC Memory Cards.
- Do not insert foreign objects into the openings of any devices.
- Do not attempt to modify the recorder or SDHC Memory Cards.
- Do not use the recorder in a place where it or an SDHC Memory Card might get wet, or water might get inside them.
- The recorder is intended to work only with SDHC Memory Cards. Do not attempt to use non-SDHC Memory Cards, as that could damage the recorder.
- When inserting an SDHC Memory Card, make certain that it is not upside down or backwards, and do not attempt to force a bent or damaged SDHC Memory Card, as that could damage the card or SDHC Memory Card slot.
- While the recorder is operating (and especially recording), do not disconnect the recorder's power cable (included in the separately sold Cable Kit). Before disconnecting the power cable, first stop all operations and turn the recorder off. Otherwise, the SDHC Memory Card may be damaged, or recorder setting files or management data on the SDHC Memory Card may be corrupted.

Precautions for use of SDHC Memory Cards

- If an SDHC Memory Card that has been used with another device is to be used, format it with the "SD Memory Card Formatting Software" which can be downloaded from the following Web site:

  http://panasonic.jp/support/global/cs/sd/download/sd_formatter.html

  (Refer to "Format" in Section 2: Operation.)
- Since the number of recording files on an SDHC Memory Card is limited, exceeding the maximum number of recording files will detect an end of card event even if there is space left on the card.

■Maintenance

- To clean the recorder, turn the vehicle's ignition switch to the LOCK (OFF) position, and keep the recorder power turned off (see "Off" on page 20).
- Do not use solvents such as benzene, thinner or alcohol, as these can deform the case or damage the surface finish.
- Use a soft, dry cloth to dust off the recorder. If severely soiled, wipe it with a cloth moistened with a weak solution of mild synthetic detergent and wrung out, and afterwards wipe with a dry cloth.
- If using a chemically treated cloth, follow the instructions provided with it.

Control Reference Guide

Front panel (1)
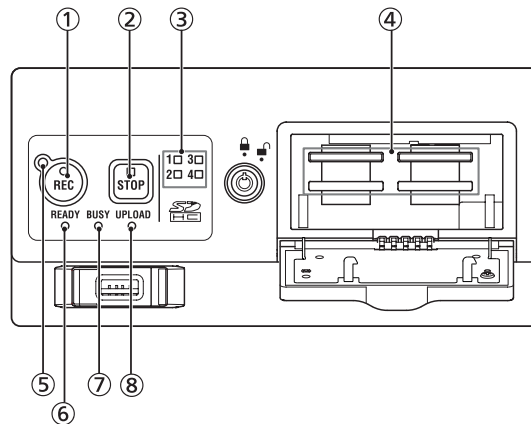
① **REC button (●)**
Starts recording of video and sound to an SDHC Memory Card.

② **STOP button (■)**
Stops recording.

③ **SDHC Memory Card lamps 1, 2, 3, and 4**
Light in green when SDHC Memory Cards are inserted in the SDHC Memory Card slots. The lamp for the card to be used for recording lights in orange (refer to "Indicator Lamps and Recorder Status" in Section 2: Operation).

④ **SDHC Memory Card slots 1, 2, 3, and 4**
Insert SDHC Memory Cards here. Up to four cards can be inserted simultaneously.

⑤ **REC lamp**
Lights up during recording. If the combined remaining recording time for the cards inserted in the SDHC Memory Card slots 1, 2, 3, and 4 is less than 30 minutes, the lamp starts flashing (refer to "Indicator Lamps and Recorder Status" in Section 2: Operation).

⑥ **READY lamp**
Lights up when recording is possible on an SDHC Memory Card inserted in an SDHC Memory Card slot (refer to "Indicator Lamps and Recorder Status" in Section 2: Operation).

⑦ **BUSY lamp**
Lights up or flashes while an SDHC Memory Card is accessed (recording or playback; refer to "Indicator Lamps and Recorder Status" in Section 2: Operation).

⑧ **UPLOAD lamp**
Stays lit while the recorder is connected with a Back End Application installed.
While data recorded on an SDHC Memory Card are being uploaded or exported, the lamp flashes (refer to "Indicator Lamps and Recorder Status" in Section 2: Operation).

11

Control Reference Guide (continued)

Front panel (2)
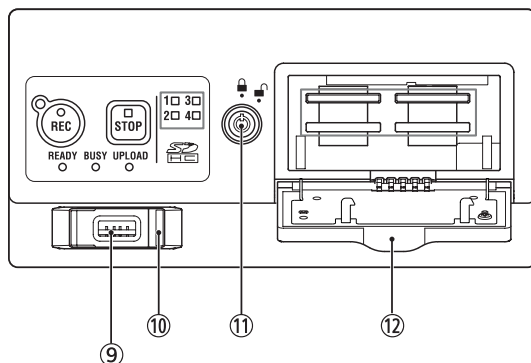
⑨ **USB connector**
A commercially available USB memory device can be connected for use as external memory.
Not all USB memory devices may be recognized.

⑩ **USB connector cover**
Close the cover to prevent foreign objects from getting into the connector when a USB memory device is not to be used.
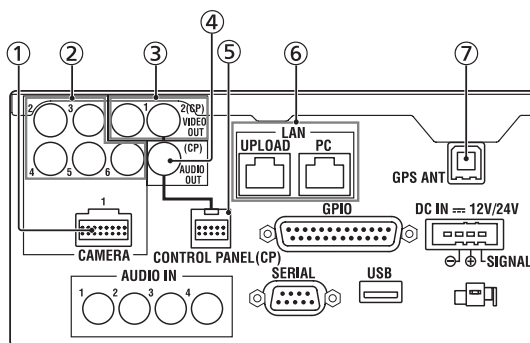
⑪ **Lock**
Locks and unlocks the SDHC Memory Card slot cover.

⑫ **SDHC Memory Card slot cover**
Protects the SDHC Memory Cards. Recording is disabled when open.

Control Reference Guide **(continued)**

Rear panel (1)

① **CAMERA 1 connector**
Connect the separately sold Color Camera using the cable attached to the Camera.

② **CAMERA 2 (brown), 3 (red), 4 (green), 5 (orange), 6 (blue) connectors (Pin jack)**
These are composite signal inputs. Connect commercially available cameras.

③ **VIDEO OUT 1 (yellow), 2 (yellow) connectors (Pin jack)**
These are composite signal outputs.
VIDEO OUT 1:
Provides output of the video applied to the [CAMERA 1] or [CAMERA 3] connector, or the same signal as the output of the [VIDEO OUT 2] connector by setting with the menu.
(Refer to Section 2: Operation "Setting the output video".)
VIDEO OUT 2:
Accepts connection of the cable attached to the separately sold Remote Control Panel.

④ **AUDIO OUT (white) connector (Pin jack)**
This is a line level signal output. Accepts connection of the cable attached to the separately sold Remote Control Panel.

⑤ **CONTROL PANEL (CP) connector**
Connect the separately sold Remote Control Panel using the cable attached to the Remote Control Panel.

⑥ **LAN (UPLOAD, PC) connectors**
Connect the recorder to PCs using commercially available LAN cables.
Note:
For details on how to connect a PC, contact your supplier.

⑦ **GPS ANT. connector**
Insert the cable from the GPS antenna (included in the separately sold Cable Kit). During GPS reception, the signals received will regularly and automatically set the recorder clock to GPS time.

13

Control Reference Guide (continued)

Rear panel (2)
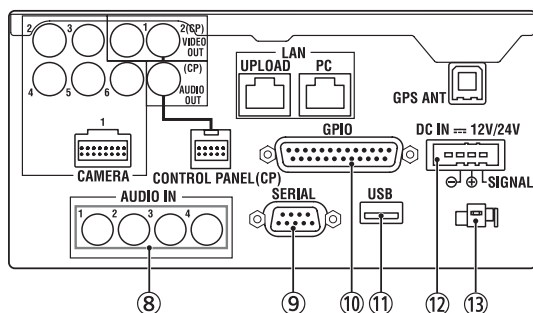
⑧ **AUDIO IN 1 (black), 2 (red), 3 (black), and 4 (black) connectors (Pin jack)**

These are line or microphone level signal inputs.
The output signals of audio components or wireless microphones can be connected here.

⑨ **SERIAL connector**

For RS-232C. Connect a commercially available radar gun.

⑩ **GPIO connector**

This combo connector accepts up to 16 trigger signal (GPI1-16) inputs and supplies up to four signal (GPO1-4) outputs. Connect the trigger cable here (included in the separately sold Cable Kit).

⑪ **USB connector**

Connect a specified, commercially available wireless LAN module. (For a specified, commercially available wireless LAN module, consult your supplier.)

⑫ **DC IN connector (DC IN ⎓ 12V/24V)**

This connector accepts power from the vehicle battery.
Connect the power cable here (included in the separately sold Cable Kit).

Note:

Do not pull out the power cable (included in the separately sold Cable Kit) while the recorder is running. Turning the power off especially during access (for example, during recording) may damage the SDHC Memory Card or corrupt file management data, setting information and other data on the SDHC Memory Card.

⑬ **Cable Clamp**

Use this clamp to affix video, audio, camera cables and the power cable (included in the separately sold Cable Kit).
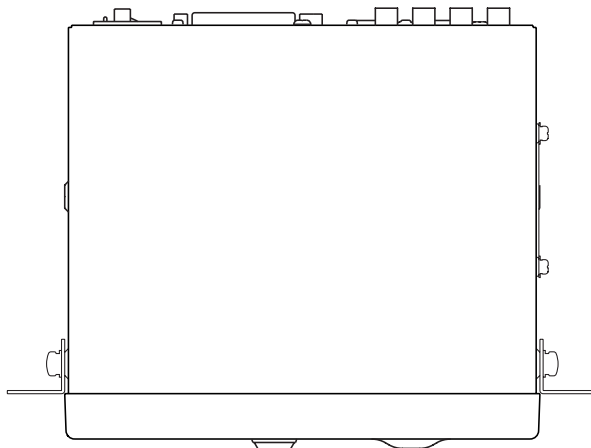
14

Control Reference Guide (continued)
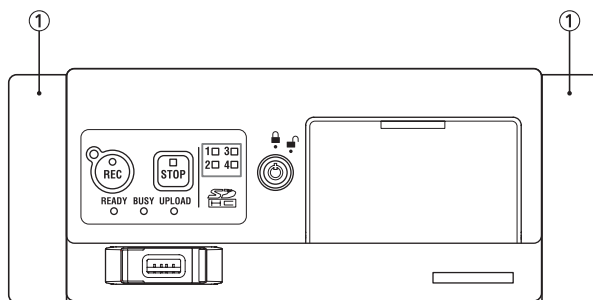
Mounting bracket

The recorder can be mounted turned by 90° in a center console or trunk. The figure below is an example of mounting in a center console. (Factory default setting)
For trunk mounting, remove the screw to remove the mounting bracket. Rotate the mounting bracket 90° and attach the screw again.

Top

Front

① **Spaces for mounting holes** *
In these spaces the holes can be
made to mount the recorder on the
center console or trunk.

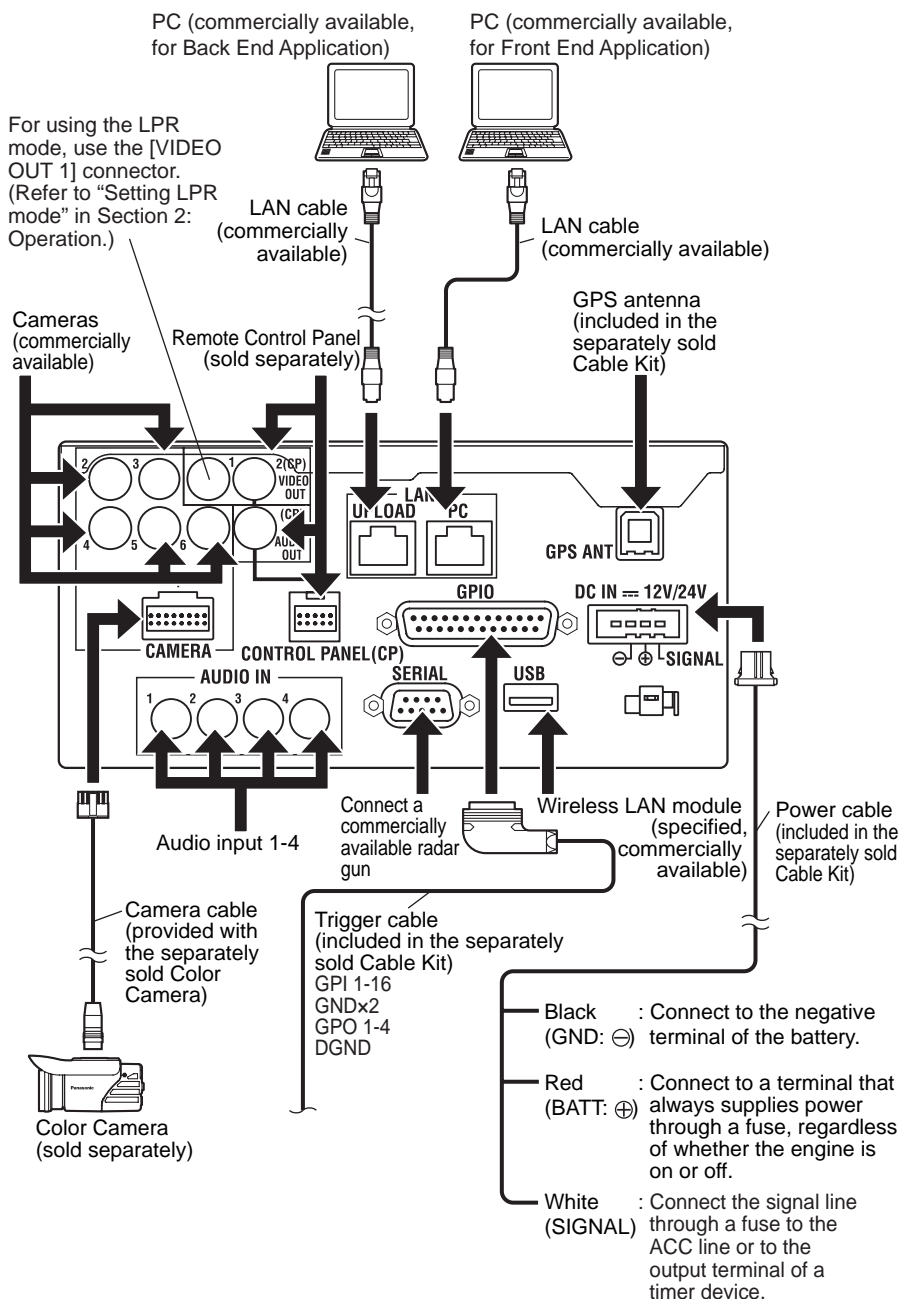* Consult your supplier and request help with installation.

Connections

- Be sure to consult your supplier and request installation and connection.
- Connect the red (BATT) and white (SIGNAL) wires of the power cable via a fuse (7.5 A) having UL Listing.
  (The power cable is included in the separately sold Cable Kit.)
- Connect the power cable from the passenger compartment fuse box. Use a commercially available automotive cable to provide power from the engine compartment to operate the recorder in the passenger compartment.

- Connect the power cable when all connections are completed. Be sure to read the instructions in the connector diagram on pages 21 through 23 and the operating instructions of the devices that will be connected.
- Verify that recording is not in progress prior to disconnecting any cables from the recorder. Be sure to disconnect the power cable first, and then disconnect any other cables.
- An incorrectly connected power cable could cause a fire or damage. Be sure to connect the power cable correctly.

Connections (continued)

PC (commercially available, for Back End Application)

PC (commercially available, for Front End Application)

For using the LPR mode, use the [VIDEO OUT 1] connector. (Refer to "Setting LPR mode" in Section 2: Operation.)

LAN cable (commercially available)

LAN cable (commercially available)

GPS antenna (included in the separately sold Cable Kit)

Cameras (commercially available)

Remote Control Panel (sold separately)

2(CP)
VIDEO OUT
(CP)
AUDIO OUT

LAN
UPLOAD   PC

GPS ANT

CAMERA   CONTROL PANEL(CP)

GPIO

DC IN ⎓ 12V/24V

SIGNAL

AUDIO IN
1 2 3 4

SERIAL   USB

Connect a commercially available radar gun

Wireless LAN module (specified, commercially available)

Power cable (included in the separately sold Cable Kit)

Audio input 1-4

Trigger cable (included in the separately sold Cable Kit)
GPI 1-16
GND×2
GPO 1-4
DGND

Camera cable (provided with the separately sold Color Camera)

Color Camera (sold separately)

Black (GND: ⊖) : Connect to the negative terminal of the battery.

Red (BATT: ⊕) : Connect to a terminal that always supplies power through a fuse, regardless of whether the engine is on or off.

White (SIGNAL) : Connect the signal line through a fuse to the ACC line or to the output terminal of a timer device.

17

SDHC Memory Card Insertion and Removal

Do not insert or remove an SDHC Memory Card when another SDHC Memory Card is being accessed (while the [BUSY] lamp is lit or blinking). Otherwise the SDHC Memory Card may be damaged or SDHC Memory Card data may be corrupted.
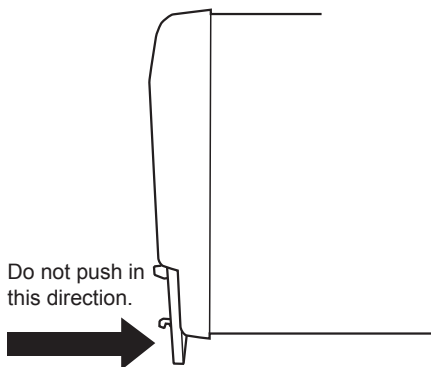
Inserting an SDHC Memory Card

(1) Open the SDHC Memory Card slot cover.

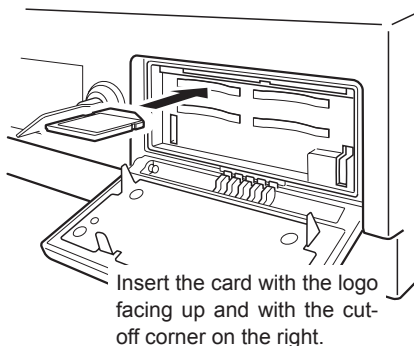Insert the key in the lock and turn it clockwise to [🔓].
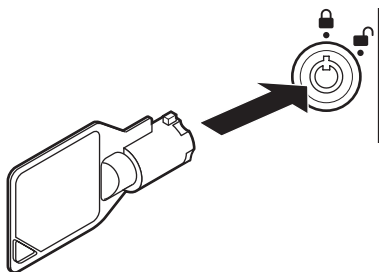
Notes:
- Do not try to turn the key further than the stop position, and do not move it unnecessarily, to prevent damage to the key and lock.
- To prevent damage, do not exert undue force on the open cover.

Do not push in this direction.

(2) Insert an SDHC Memory Card into the SDHC Memory Card slot and push it in until it clicks.

Insert the card with the logo facing up and with the cut-off corner on the right.
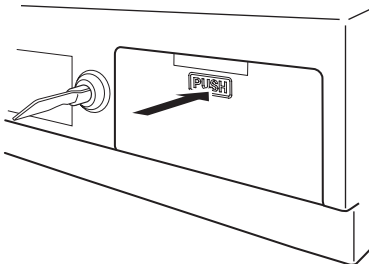
Note:
The [BUSY] lamp blinks for a few seconds when the SDHC Memory Card slot cover is opened. Make sure that the blinking has stopped before inserting an SDHC Memory Card.

SDHC Memory Card Insertion and Removal (continued)

(3) Close the SDHC Memory Card slot cover.

Return the SDHC Memory Card slot cover to its original closed position and press the section marked | PUSH |.

When you close the SDHC Memory Card slot cover after inserting an SDHC Memory Card, the [READY] lamp indicates the recorder status. (Refer to "Indicator Lamps and Recorder Status" in Section 2: Operation.)
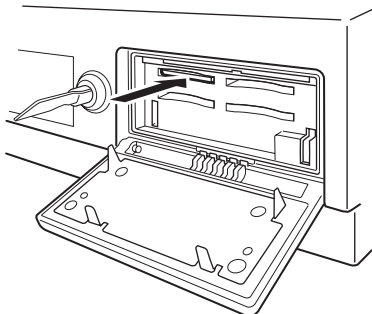
(4) Remove the key.

Turn the key counterclockwise to [🔒], and remove it.

Removing an SDHC Memory Card

(1) Open the SDHC Memory Card slot cover (see previous page)**.**

(2) Push the center of the card until it clicks so that the SDHC Memory Card pops out then pull it out straight.


Note:

The [BUSY] lamp blinks for a few seconds when the SDHC Memory Card slot cover is opened. Make sure that the blinking has stopped before removing an SDHC Memory Card.

Note:

If an SDHC Memory Card was removed while it was being accessed, the files may be corrupted. The corrupted files are automatically repaired. (For details, refer to "Restoring Files Automatically" in Section 2: Operation.)

(3) Close the SDHC Memory Card slot cover.

Return the SDHC Memory Card slot cover to its original closed position and press the section marked | PUSH |.

(4) Remove the key.
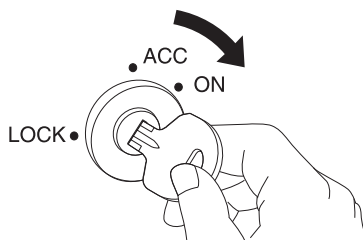
Turn the key counterclockwise to [🔒], and remove it.

19
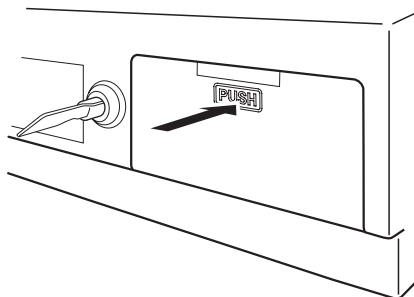
Turning the Recorder On and Off

Recorder power is supplied from the vehicle's battery.

On
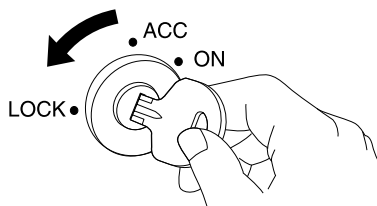
Turn the vehicle's ignition switch to ON or ACC.

> Power to the recorder is turned on. If the Remote Control Panel is connected, its power is also turned on.

Off

Turn the vehicle's ignition switch to LOCK (OFF).

> Power to the recorder is turned off. If the Remote Control Panel is connected, its power is also turned off.

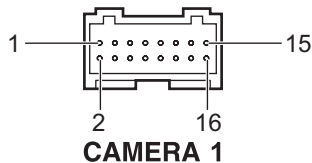**Notes:**

- The recorder cannot be turned off from the Remote Control Panel.
- The [PowerOff Time] can be set (refer to "PowerOff Time" in Section 2: Operation) to allow the recorder to continue operating for up to 180 minutes after the vehicle's ignition switch is turned to LOCK (OFF).
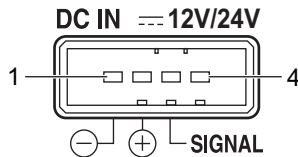
Connector Signals

[CAMERA 1] connector (male)

CAMERA 1

Pin number	Signal
1	N.C.
2	GND (SHIELD)
3	V_OUT
4	GND (V_OUT)
5	BL_L
6	GND (TxD/RxD)
7	AUTO_ZOOM_L
8	TxD
9	REC_L
10	RxD
11	GND (DC_IN)
12	REC_LED_L
13	DC_IN
14	GND (SHIELD)
15	N.C.
16	GND (SHIELD)

[DC IN] connector (male)

DC IN ⎓ 12V/24V

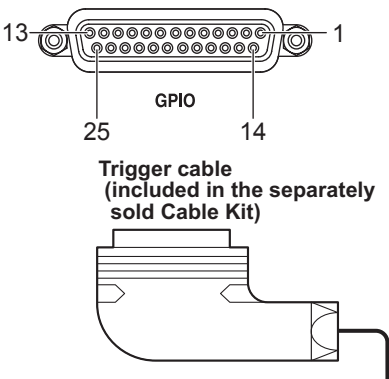| Pin number	Signal	Cable color
1	GND (⊖)	Black
2	BATT (⊕)	Red
3	SIGNAL*	White
4	N.C.	

Black
Red
White

Power cable (included in the separately sold Cable Kit)

∗ Recorder power can be turned on and off by the SIGNAL port. If an OFF signal is input while the recorder is operating, the recorder turns off after the time specified on the Remote Control Panel.
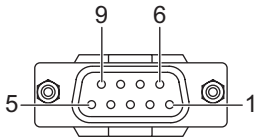
Connector signals (continued)

[GPIO] connector (female)

GPIO

13 ... 1

25 ... 14

**Trigger cable
(included in the separately
sold Cable Kit)**

GPO 1	Open emitter output
GPO 2	Open emitter output
GPO 3	Open collector output
GPO 4	Power output of 5 V

Pin number	Signal	Cable color
1	GND	Black/White
2	N.C.	—
3	GPI 13	Pink
4	GPI 14	Light Green
5	GPI 15	Brown/White
6	GPI 16	Orange/White
7	GND (DIGITAL)	Green/Black
8	GPO 2	Green/White
9	GND	Black
10	GPI 1	Brown
11	GPI 2	Red
12	GPI 3	Orange
13	GPI 4	Yellow
14	GPI 9	Blue/White
15	GPI 10	Violet/White
16	GPI 11	Red/Black
17	GPI 12	Orange/Black
18	GPO 3	Yellow/Black
19	GPO 4	Red/White
20	N.C.	—
21	GPI 5	Green
22	GPI 6	Blue
23	GPI 7	Violet
24	GPI 8	Gray
25	GPO 1	White

[SERIAL] connector (male)[*1]

9 6

5 ... 1

Pin number	Signal
1	N.C.
2	RxD
3	TxD
4	DTR
5	SG
6	DSR
7[*2]	RTS
8[*2]	CTS
9	N.C.

*1 Consult your supplier and request radar gun connection.
*2 Pins 7 and 8 on this recorder are short-circuited.

Connector signals (continued)

[CONTROL PANEL] connector (male)
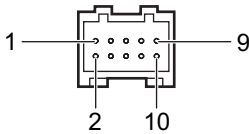
Pin number	Signal
1	N.C.
2	N.C.
3	DC_IN
4	GND (DC_IN)
5	SOUT_P
6	SOUT_N
7	SIN_P
8	SIN_N
9	GND (DIGITAL)
10	GND (FG)

Specifications

Power requirements:
           12 V DC / 24 V DC
Input current: 2.7 A (at 12 V DC)
           1.3 A (at 24 V DC)
Current consumption in standby:
           1 mA (12 V DC/24 V DC)

▭ indicates safety information.

Operating temperature:
  0 °C to 45 °C (32 °F to 113 °F)
Storage temperature:
  –20 °C to 60 °C (–4 °F to 140 °F)
Operating humidity:
  10 % to 80 % (no condensation)
Weight
  1,600 g (3.53 lb)

Dimensions (W x H x D)
  (excluding protrusions and recorder
  mounting brackets)
  178 mm x 87 mm x 155 mm
  (7 inches x 3-7/16 inches x 6-3/32 inches)
Video format:
  NTSC (525 lines, 60 fields)
Recording media:
  SDHC Memory Card

Specifications (continued)

■Video

Inputs:

CAMERA 1 x 1
1.0 V [P-P], 75 Ω, unbalanced
CAMERA 2-6 (Pin jack) x 5
1.0 V [P-P], 75 Ω, unbalanced

Outputs:

VIDEO OUT 1 - 2 (Pin jack) x 2
1.0 V [P-P], 75 Ω, unbalanced

■Audio

Inputs:

AUDIO IN 1 - 4 (Pin jack) x 4
WMIC: –10 dBV, 25 kΩ,
    unbalanced
MIC: –50 dBV, 3 kΩ, unbalanced
    (plug-in power approx. 4 V)
    (selectable)

Output:

AUDIO OUT (Pin jack) x 1
–6 dBV, 600Ω, unbalanced

■DC IN connector

SIGNAL port

Input voltage L: 0 V - 1.0V
            H: 8 V - 28 V
Input current: 1 mA (max.)

■Other I/O connectors

• GPIO connector x 1
  D-Subminiature 25-pin
  GPIO
    Inputs: 16 ports
      Input voltage L: 0 V - 1.0 V
                  H: 4 V - 28 V
      Input current: 12 mA (max.)
      (Time required to
      detect changes: 100 ms)
    Outputs: 4 ports
      Open-emitter output x 2
        Output voltage: approx. 4.5 V
        Output current: 15 mA (max.)
      Open-collector output x 1
        Input voltage: 4 V - 28 V
        Input current: 25 mA (max.)
      DC output x 1
        Output voltage: approx. 5.0 V
        Output current: 50 mA (max.)

• CAMERA 1 connector x 1
  16-pin, for AG-CK10P

• CONTROL PANEL connector x 1
  10-pin, for AG-RCP30P

• LAN connector x 2
  RJ-45, connected to a PC
  application 1000 BASE-T/100
  BASE-TX

• GPS ANT connector x 1
  GT5 connector for GPS antenna
  (included in the separately sold AG-
  CR13P)

• USB connector x 2
  USB A connector for USB memory
  device and for USB wireless LAN
  client
  Compliant with USB Ver.2.0
  Bus power current : 500 mA (max.)

• SERIAL connector x 1
  D-Subminiature 9-pin
  RS-232C

Weight and dimensions are approximate.
Specifications are subject to change
without notice.

Panasonic Computer Solutions Company

Worldwide Product Warranties

Section 1: Limited Warranty - Hardware

Panasonic Computer Solutions Company (referred to as "Panasonic") will repair the products listed below with new or rebuilt parts, free of charge in the U.S.A. or other Panasonic approved location for the period specified below from the date of original purchase in the event of a defect in materials or workmanship. These warranties are extended solely to the original purchaser. A purchase receipt or other proof of date of original purchase will be required before warranty performance is rendered.

• Laptop Computers – 3 Years
• PDRC - LCD and Keyboard Assemblies – 3 Years
• MDWD – Mobile Computer and Wireless Display Assemblies - 3 Years
• Hand-held Computers (P1/P2) – 1 Year
• Arbitrator Video Camera – 1 Year
• Arbitrator Recorder Unit – 1 Year
• Arbitrator Remote Control Panel – 1 Year
• Arbitrator Wireless Receiver Unit – 1 Year
• Arbitrator P2 Card(s) (All Sizes) – 1 Year
• Arbitrator Wireless Microphone(s) / Transmitter – 90 Days
• Arbitrator System Component Interconnect Cables – 90 Days

Main Battery

The battery supplied with the product is covered under the warranty for one (1) year from date of purchase, except as excluded in Section 3. Batteries purchased separately are covered under the warranty for one (1) year from the date of purchase. A battery furnished under the warranty is covered for the remaining period of the one year warranty on the original or purchased battery.

Options and Accessories

The below listed Panasonic brand or supplied options and accessories are covered under this limited warranty for the period specified from the date of purchase or as specifically stated:

• AC Adapter / Power Cord – 3 Years
• Memory Card (Panasonic Brand) – 3 Years
• Car Mount Docking Station PCB or Complete Vehicle Docking Station – 3 Years
• Port Replicator / I-O Box – 3 Years
• Antenna Pass-through Cable – 3 Years
• Backlit or Full-sized keyboard - 3 Years or assumes warranty of the unit in which it is installed
• Integrated Panasonic supplied options and kits including, but not limited to Wireless Modems, Media Bay Drives (Floppy, CD, DVD, Combo), GPS, Bluetooth, Smartcard Reader, and Fingerprint readers – 3 Years or assumes warranty period of the unit in which it is installed provided the integration was performed by Panasonic or an Authorized Options Integrator
• Hard Drive (separately purchased) – 1 Year
• External USB Drives (CD / DVD / Floppy / Hard Drive) – 1 Year
• Optional Battery – 1 Year
• Battery Charger – 1 Year
• Standard or Digitizer Stylus Pens – 90 Days (physical damage excluded)

Section 2 - Limited Warranty - Software

Panasonic Computer Solutions Company (referred to as "Panasonic") warrants to you only that the disk(s) or other media on which the Programs are furnished will be free from defects in material and workmanship under normal use for a period of sixty (60) days from the date of delivery thereof to you, as evidenced by your purchase receipt.

This is the only warranty Panasonic makes to you. Panasonic does not warrant that the functions contained in the Programs will meet your requirements or that the operation of the Programs will be uninterrupted or error free. Panasonic shall have no obligation for any defects in the disk(s) or other media on which the Programs are furnished resulting from your storage thereof, or for defects that have been caused by operation of the disk(s) or other media.

Panasonic's entire liability and your exclusive remedy under this warranty shall be limited to the replacement, in the United States or other Panasonic designated location, of any defective disk or other media which is returned to Panasonic's Authorized Service Center, together with a copy of the purchase receipt, within the aforesaid warranty period. The customer is responsible for ensuring that all data is backed up and made secure during normal use and before sending a unit for service.

Section 3 - Limited Warranty Exclusions

Specifically excluded from the warranty are:

• All consumable items; such as screen protection films, logo badges, labels, cleaning cloths, carry cases, manuals, cables, straps, belts, holsters, tethers, and harnesses and any other options and accessories not listed above or covered under a separate warranty
• Failures related to the product operating system, hard drive image, software setup, software program, virus, other program(s) or file(s) on the hard drive or in any computer memory location
• Failures due to BIOS settings or changes, as well as any cosmetic or physical damage to the unit
• Any unit or device with a missing or altered model number or serial number label
• Damage which occurs in shipment
• Failures which are caused by products not supplied by Panasonic
• Failures which result from alteration, accident, misuse, introduction of liquid or other foreign matter into the unit, abuse, neglect, installation, maladjustment of consumer controls, improper maintenance or modification, use not in accordance with product use instructions
• Failures due to service by anyone other than a Panasonic Authorized Service Provider
• Failures caused by improper integration by any company other than Panasonic Configuration and Integration Centers
• Damage, failure, or loss due to the unit being stolen, lost, misplaced, or used by anyone other than the original purchaser
• Damage that is attributable to acts of God

This warranty only covers failures due to defects in materials or workmanship which occur during normal use.

Other Limits and Exclusions: There are no other express warranties except as listed above.

PANASONIC SHALL NOT BE LIABLE FOR LOSS OF DATA OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THIS PRODUCT, OR ARISING OUT OF ANY BREACH OF THIS WARRANTY. ALL EXPRESS AND IMPLIED WARRANTIES, INCLUDING THE WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE ARE LIMITED TO THE APPLICABLE WARRANTY PERIOD SET FORTH ABOVE. Some states do not allow the exclusion or limitation of incidental or consequential damages, or limitations on how long an implied warranty lasts, so the above limitations or exclusions may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights which vary from state to state.

For technical support or to arrange for service on your Panasonic computer product, call our toll-free 24 hour hotline at 1-800-LAPTOP5.

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